

SOV/26-59-1-4/34

AUTHOR: ~~Sisakvan~~ N.M., Corresponding Member AS USSR;
~~Deputy Chief Scientific Secretary of the Presidium, AS USSR~~

TITLE: The Principal Trends of Science in the Seven-Year Plan
(Osnovnyye napravleniya nauki v semiletнем plane)

PERIODICAL: Priroda, 1959, Nr 1, pp 11-14 (USSR)

ABSTRACT: The author reviews the present state of Soviet science with respect to the forthcoming requirements of the new 7-Year Plan. Soviet science envisages two principal tasks: a comparison of its present level and achievements with those of science abroad, and the concentration upon research fields that have maximum bearing on the fulfillment of the Plan. In the realm of physics, stress is to be placed on controlled thermonuclear reactions, semiconductor technology, computer and programming technique, and problems of cosmic rays and phenomena in interplanetary space. Investigations in the field of chemistry should emphasize the development of artificial and synthetic materials, heat-and wear-resistant polymers, the structure and mechanism of formation of biologically

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SIBAKYAN, M.M.; HODOLINA, I.M.

~~Membrane of chloroplast.~~ TSitologiya 1 no.4:366-368 J1-Ag
'59. (MIRA 12:10)

1. Laboratoriya enzimologii Instituta biokhimii AN SSSR, Moskva.
(CHROMATOPHORES)

SOV/30-59-4-7/51

The UNESCO and International Cooperation in the Years 1959-1960

I. P. Tsameryan and S. L. Ronin, **staff members** of the Academy of Sciences of the USSR, prepared the following pamphlets to be published by the UNESCO: "Education in Social Sciences in the USSR", "Equality of Rights of Races and Nations in the USSR". The Soviet scientists L. A. Zenkevich, G. V. Bogomolov, Ye. M. Zhukov and V. A. Kovda work in various institutions of the UNESCO. According to the authors' opinion the program of the UNESCO may, in spite of several shortcomings, serve as a basis of international cooperation. They regard it as a great mistake that the People's Republic of China is not a member of the UNESCO. According to a suggestion made by the USSR, an International Conference on Semiconductors and the Establishment of a Convention for Scientific-technical Collaboration is to be convened in the years 1961-1962. An International Congress for Oceanography is to be convened in New York in September 1959 and a Conference on the Equipment of an International Research Ship is to be held in 1960. The periodical "Kur'yer YuNESKO" published the article "Solar Energy. Hopes and Reality" by the Soviet scientist V. A. Baum. A Conference on the Use of Electronic Computers is to be convened in Paris in June 1959. At

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SISAKYAN, N.M.; KRASNOVSKIY, A.A.; MIKHAYLOVA, Ye.S.; BRIN, G.P.

Photoreactivation of cytochrome oxidase activity in plant tissues containing and lacking chlorophyll [with summary in English]. Bio-khimiia 24 no.1:3-8 Ja-F '59. (MIRA 12:4)

1. Institute of Biochemistry, Academy of Sciences of the U.S.S.R., Moscow.

(CYTOCHROME OXIDASE)
(PLANTS, EFFECT OF LIGHT ON)
(CHLOROPHYLL)

BEZOMGER, E.N.; SISAKYAN, N.M.; SIMAKOVA, I.M.

Nitrogenous components of lipoids in plastid lipoproteins. Biokhimiia
24 no.5:876-884 S-O '59. (MIRA 13:2)

1. Institut biokhimii imeni A.N. Bakha Akademii nauk SSSR, Moskva.
(LIPIDS) (PLANTS--METABOLISM)

SISAKYAN, N.M.; FILIPPOVICH, I.I.

Protein synthesis and cellular structures. Izv. AN SSSR. Ser. biol.
24 no.6:839-854 N-D '59. (MIRA 13:4)

1. Institute of Biochemistry, Academy of Sciences of the U.S.S.R.,
Moscow. (PROTEIN METABOLISM) (PLANT CELLS AND TISSUES)

SISAKYAN, N.M.; MARKOSYAN, L.S.

Amino acid composition of proteins in wheat grain. Biokhimiia 24
no.6:1094-1103 N-D '59. (MIRA 13:5)

1. Institute of Biochemistry, Academy of Sciences of the U.S.S.R.,
Moscow.

(WHEAT chem.)
(AMINO ACIDS chem.)

KONSTANTINOV, B.P.; DEBORIN, A.M., akademik; PEYVE, Ya.V.; IOFFE, A.F.,
akademik; MIKHAYLOV, A.I., prof.; SATPAYEV, K.I., akademik;
ZHUKOV, Ye.M., akademik; LAVRENT'YEV, M.A., akademik; SEMENOV, N.N.,
akademik; PAVLOVSKIY, Ye.N., akademik; MINTS, I.I., akademik;
SISAKYAN, N.M.; ROMASHKIN, P.S.; FEDOROV, Ye.K.; STECHKIN, B.S.,
akademik; MAYSKIY, I.M., akademik; PAVLOV, Todor, akademik;
ARBUZOV, A.Ye., akademik; VASIL'YEV, N.V., doktor ekon.nauk;
BELOUSOV, V.V.; MITIN, M.B., akademik; BLAGONRAVOV, A.A., akademik;
KANTOROVICH, L.V.; RYBAKOV, B.A., akademik; NEMCHINOV, V.S., akademik
Discussion of the address. Vest. AN SSSR 29 no.4:34-63 Ap '59.
(MIRA 12:5)

1.Chlen-korrespondent AN SSSR (for Konstantinov, Peyve, Sisakyan,
Romashkin, Fedorov, Belousov, Kantorovich).
(Science)

17(3)

AUTHORS:

Sisakyan, N. M., Corresponding Member, SOV/20-124-5-55/62
AS USSR, Gumilevskaya, N. A.

TITLE:

On the Nucleotide Composition of the Nucleic Acids in the
Silkworm (*Bombyx Mori* L.) (O nukleotidnom sostave nukleinovyykh
kislot tutovogo shelkepriyada (*Bombyx mori* L.))

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 5, pp 1154-1156
(USSR)

ABSTRACT:

The nucleic acid content in *Bombyx mori* L. is considerably
changed in the course of metamorphosis (Ref 1). Histolysis
and tissue differentiation are accompanied by its increase.
The chemical composition of these acids is expressed among
other things by the nature of the ratio between the purine
and the pyrimidine bases in the ribonucleic (RNA) and the
deoxyribonucleic acid (DNA). The theorem on the specificity
of DNA was formulated. Since no considerable differences were
observed in the nucleotide composition of the RNA (in toto)
of microorganisms, the problem of their specificity remains
still unsolved. The authors investigated the composition of
the RNA in *Bombyx mori* L. in toto by quantitative paper
chromatography and spectrophotometry (according to Ref 10)

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On the Nucleotide Composition of the Nucleic Acids
in the Silkworm (*Bombyx Mori* L.)

SOV/20-124-5-55/62

with some modifications). During metamorphosis the following 4 nucleotides could be identified and determined in molar per cents: Guanylic, adenylic, uridylic, and cytidylic acid (Table 1). The RNA investigated shows the general regularities which are characteristic of the native composition of RNA (Ref 7). The number of the 6-keto groups is equal to the number of the 6-amino groups, i.e., the molar content of guanylic + uridylic acid is equal to the content of adenylic + cytidylic acid. On the basis of this general regularity all RN acids may belong only to three types: a) with a predominant content of guanylic and cytidylic acid as compared with the adenylic and uridylic acid (GC type); b) tetranucleotide type; c) with predominant content of adenylic and uridylic acid over that of guanylic and cytidylic acid (AU type). The RNA of *Bombyx mori* L. belongs to the AU type in contrast to the RNA of microorganisms (GC type, Ref 5) and remains the same during metamorphosis. The ratio between purines and pyrimidines is not so high as in the RNA of microorganisms. The DNA content is, on the whole, low in *Bombyx mori* L. At present, only eggs taken from

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On the Nucleotide Composition of the Nucleic Acids
in the Silkworm (*Bombyx Mori* L.)

SOV/20-124-5-55/62

femal chrysalises were investigated and the per cent content of purines and pyrimidines is determined. Also in this case general regularities in the composition of the native DNA were observed (Ref 3). Further investigations are necessary in order to find the lack or presence of essential differences between the RNA of insects and that of other animals which were found in the present paper. There are 1 figure, 1 table, and 12 references. 3 of which are Soviet

ASSOCIATION: Institut biokhimi im. A. N. Bakha Akademii nauk SSSR
(Institute of Biochemistry imeni A. N. Bakh of the Academy of Sciences, USSR)

SUBMITTED: December 22, 1958

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47(3)

SOV/20-124-6-44/55

AUTHORS:

Sisakyan, N. M., Corresponding
Member, AS USSR, Pinus, Ye. A.

TITLE:

On Mitochondrial Factors Affecting Glycolysis
(O mitokhondrial'nykh faktorakh, vliyayushchikh na glikoliz)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 6, pp 1342-1343
(USSR)

ABSTRACT:

The principal oxidizing processes of the cell are concentrated within the mitochondria whereas the glycolytic reactions are more or less localized in the soluble cell fraction. Several authors were able to stimulate the glycolysis of the soluble fraction by the action of mitochondria (Refs 2, 3), whereas others (Refs 4, 5) observed, on the contrary, an inhibition of the aerobic glycolysis; this enabled them to put the mechanism of action of the mitochondria in relation to the Pasteur effect. Complex interrelations are existing between the glycolytic processes of the soluble fraction and the mitochondria added. The nature of the mitochondria effect (inhibitory or stimulating) depends on the concentration of the added mitochondria and on the substrate applied. The inhibitory

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On Mitochondria' Factors Affecting Glycolysis

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effect takes place in the stage between the glucose-6-phosphate and hexose-diphosphate, whereas the stimulating effect becomes manifest after the formation of the latter substance. Both factors are thermolabile. The authors tried to separate the two factors. As may be seen from table 1, the glycolysis-inhibitory activity is concentrated mainly in the light fraction. The authors conclude therefrom that the inhibitory effect of the mitochondria apparently is formed by the light fraction. This fraction amounts to about 25% of the fraction of all mitochondria. The basic fraction of mitochondria exerted in most of the experiments no inhibitory effect at all or a less intense one than the light fraction. The microsome fraction exerts no inhibitory effect on glycolysis. It may be taken for granted that both mitochondrial factors are thermolabile and that a factor is independent of the mitochondrial structure. The stimulating factor can be extracted from the mitochondria which had been destroyed by freezing and thawing, whereas the glycolysis-inhibitory activity is mainly concentrated in the light mitochondria fraction. There are 1 table and 6 references, 1 of which is Soviet.

SUBMITTED:
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December 22, 1958

SISAKYAN, N.M.; MARKOSYAN, L.S.

Baking qualities of flour from certain wheat varieties in Armenia.
Biokhim.zerna no.5:65-86 '60. (MIRA 14:5)

1. Institut biokhimii imeni A.N.Bakha AN SSSR.
(Armenia--Flour)

SISAKYAN, N.M.; YEGOROV, I.A.

Some problems in the chemistry and biochemistry of cognac production.
Biokhim. vin. no.6:5-15 '60. (MIRA 13:10)

1. Institut biokhimii im. A.N. Bakha AN SSSR.
(Brandy)

SISAKYAN, N.M.; ODINTSOVA, M.S.

Nucleic acids in cellular structures of plants. Izv. AN SSSR. Ser. biol.
no. 6: 817-850 N-D '60. (MIRA 13:11)

1. The A.N. Bach Institute of Biochemistry, Moscow.
(NUCLEIC ACIDS)
(PLANT CELLS AND TISSUES)

SISAKIAN, N.M.; FILIPOVICI, I.I.

Synthesis of proteins and cellular structures. *Analele biol* 14 no.2:
39-56 Ap-Je '60. (EEAI 9:11)
(PROTEINS).. (CELLS)

SISAKYAN, N.M.; ODINTSOVA, M.S.; CHIRKASHINA, N.A.

Nucleotide composition of ribonucleic acids in cellular structures of plants. *Biokhimiia* 25 no.1:160-163 Ja-F '60. (MIRA 13:6)

1. Institut biokhimii imeni A.N. Bakha Akademii nauk SSSR, Moskva.
(RIBONUCLEIC ACID chem.)
(NUCLEOSIDES AND NUCLEOTIDES chem.)

86227

17.2000 also 3612, 3212.

S/030/60/000/011/003/026
B021/B059

AUTHOR: Sisakyan, N. M., Academician

TITLE: Problems of Biology and Space Flight

PERIODICAL: Vestnik Akademii nauk SSSR, 1960³⁰, No. 11, pp. 15-24

TEXT: In the present paper the author elucidates some results of investigations and the biological viewpoints of future manned space flight. Experiments showed that the living conditions necessary for living beings can be given during 3 to 5 hours by means of hermetically sealed cabins with oxygen regeneration. In the event of failure at an altitude of 78-85 km at 2000 km/h or at an altitude of 39-46 km at 4100 km/h, ejection by a catapult proved to be the safest method of leaving the rocket and, apparently, did not affect the physiological functions of test animals. If the space cabin is leaky, space suits with a helmet instead of an oxygen respirator proved to be effective for saving the life of the test animals. They warrant safe flight and return from an altitude of 78 - 85 km, with a total of 50-65 min spent in the upper strata of the atmosphere. Experiments showed that imponderability during 3-10 min does not cause any essential changes

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Problems of Biology and Space Flight

S/030/60/000/011/003/026
BO 21/BO59

in the function of circulatory and respiratory systems of the test animals. In connection with manned space flight, new problems arise for science: Space flight conditions and the physical state of cosmic space must be investigated; the effect of space flight upon the organism of man must be examined; operational reliability and particulars of all systems have to be studied in order to warrant safe flight into and return from space for man. Man has to be protected against the following dangers of space flight: too low pressure; shortage of molecular oxygen; influence of cosmic, ultraviolet, and corpuscular radiation; bad temperature conditions; meteors. Little is known so far about the effect of radiations upon the human organisms. All this shows that man cannot exist in cosmic space without protection. Moreover, noise, vibration, acceleration, and imponderability during flight are pointed out. The influence of terrestrial gravitation on the circulatory system has still to be examined. Much stress is laid on will- and physical training of the future space men. Pressure in the space cabin may vary between 760 and 405 mm Hg. Carbon dioxide content in the cabin should not exceed 1%. During the active part of the flight, which was accompanied by continuous accelerations and vibrations, the test animals had a raised pulse and respiratory activity. Examination of blood and urine of the animals after their return to the Earth showed no permanent disturbances of the metabolism of nucleic acids. Biological studies are being

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SISAKIAN, N.M.

SISSAKIAN, N. M. (USSR)

"Biochemical Function of Cell Structures."

Report presented at the 5th International Biochemistry Congress,
Moscow, 10-16 Aug 1961

DZHEMUKHADZE, Konstantin Melitonovich; SISAKYAN, N.M., akademik, otv.red.;
SHAROVATOVA, I.B., red.izd-va; VOLKOVA, V.V., tekhn.red.

[Tea cultivation and production in the Chinese People's
Republic] Kul'tura i proizvodstvo chais v Kitaiskoi Narodnoi
Respublike. Moskva, Izd-vo Akad.nauk SSSR, 1961. 159 p.
(MIRA 14:3)

(China--Tea)

S/026/61/000/001/001/007
A166/A027

AUTHOR: Sisakyan, N.M., Academician

TITLE: Biology and Space Flight

PERIODICAL: Priroda, 1961, No. 1, pp. 7-16

TEXT: Soviet experiments with animal-bearing rockets show that at heights of 78-85 km and speeds of 2,000 km/hr or at 39-46 km and 4,100 km/hr catapulting is the reliable emergency escape method and causes no great functional disturbances in the animal. Space helmets are the best precaution against sudden loss of cabin hermeticity and ensure a descent from 78-85 km with 50-65 minutes in the upper layers of the atmosphere. It has also been found that 3-10 minutes of weightlessness cause no great functional lesions to the animal's cardiovascular or respiratory system. No changes, genetic or otherwise, have so far been noted in the bacteria and phages contained in the second Soviet space ship. The deoxyribonucleic acid, HeLa cell culture and human and rabbit skin tissues showed little difference from the control specimens. Subsequent regrafting of skin strips contained in the ship proceeded similar to that of the control samples. ✓

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Biology and Space Flight

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A166/A027

✓


Experience has shown that certain measures will be needed for manned space flight, especially as regards lessening noise and vibration during the active phase of flight. Man can best withstand gravitational stresses when they are directed chest-back, back-chest, left-right or right-left. The worse effects are sustained from stresses applied longitudinally to the body, especially from feet to head. If the astronaut is in a semi-prone position he should be able to withstand great stresses over a considerable period of time. Experiments with the dog Laika showed that the respiratory and circulatory functions approached normal during weightlessness but took 3 times as long to reach normal as in the Laboratory tests, probably due to the effects of weightlessness. Prolonged weightlessness would seem to cause no great changes in the main physiological functions. Experiments with Belka and Strelka indicate that the body can more easily withstand the transition from acceleration to weightlessness than the reverse. After prolonged weightlessness human acceleration endurance is reduced by approximately 2 units. The USSR has been systematically experimenting with the recovery of nose cones, together with animals and all necessary apparatus, to a total weight of 1,700 kg. The problem of capsule recovery has now

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Biology and Space Flight

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A166/A027

been solved. During the active portion of the flight, accompanied by prolonged acceleration and great vibration, an animal's pulse and respiration rates rise sharply but fall upon transition to weightlessness, reaching almost normal after some 90 minutes. Studies of the biochemical effects of cosmic radiation during space flight are continueing. Apparently no stable changes occur in the nucleic acid metabolism. In the case of Strelka and Belka an abnormally high quantity of alpha-globulin, serum mucoid and general protein was noted a few days after their return to earth. There are 8 photos.



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S/030/61/000/004/004/015
B105/B206

AUTHOR: Sisakyan, N. M., Academician-Secretary, Academician (see Association)

TITLE: Department of Biological Sciences

PERIODICAL: Vestnik Akademii nauk SSSR, no. 4, 1961, 40-45

TEXT: In his annual report, Academician N. M. Sisakyan, Academician-Secretary of the Otdeleniye biologicheskikh nauk (Department of Biological Sciences) pointed out a general rise in the level of scientific studies of the Department. Many laboratories and institutes of the Department participated in the biological studies on space ships. Material on the effect of space flight on the functions of living organism is so voluminous that its evaluation will take some time. The following research results were obtained during the last year: The initial links of individual processes of metabolism were reproduced on modeling systems of the type of coacervates; the synthesis of the group of amino acids by plants was studied in detail; the ferment of the alanine dehydrogenase was separated from yeast cells. Certain results were also achieved in the study of the ultrastructural

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Department of ...

organization of viruses, bacteriophages, bacteria and the biochemical properties of the functional cell structures. The study of the energetic states of biopolymers was developed at the Institut radiatsionnoy i fiziko-khimicheskoy biologii (Institute of Radiation- and Physicochemical Biology). Theoretical and practical studies in the field of microbiology were also conducted. In 1960, studies concerning the breeding of rich-milking cows were developed at the experimental "Gorki Leninskiye" farm of the Institut genetiki (Institute of Genetics). At the Institut vysshey nervnoy deyatel'nosti i neyrofiziologii (Institute of Higher Nervous Activity and Neurophysiology), the quantitative analysis of the data of electroencephalography was realized by using electronic computers. At the Institut fiziologii im. I. P. Pavlova (Institute of Physiology imeni I. P. Pavlov), methods of the information theory were utilized for studying the visual analyzer. Important studies in the field of plant physiology, soil- and forestry science, flora, and fauna of the country, parasitology and ichthyology were conducted. The main shortcomings in the scientific activity of the institutes of the Department are caused by the fact that in many fields of biology, research applying latest methods, such as physico-chemical ones, has not been developed sufficiently. Inadequacy of the

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introduction of new methods in production, publication of monographs, manuals and reference books, as well as of the activity of the nauchnyye sovety po Problemam (Scientific Councils of Problems) are criticized. Measures were taken to strengthen the links with the Otdeleniye Khimicheskikh nauk (Department of Chemical Sciences), Otdeleniye Fiziko-matematicheskikh nauk (Department of Physical and Mathematical Sciences), VASKhNIL and Akademiya meditsinskikh nauk SSSR (Academy of Medical Sciences USSR). Lack of Control is described as one of the main shortcomings. In addition, Academician V. N. Sukachev gave a short survey on the scientific and scientific-administrative activities of the members of the Department for the periods of the report. Academicians I. V. Tyurin, V. A. Engel'gardt; I. S. Melekhov, Academician VASKhNIL and Ye. M. Kreps, Corresponding Member AS USSR, reported on the most important studies, tasks, and requirements of the institutes. Academician A. I. Oparin reported on the necessity of developing evolution Biochemistry, G. M. Frank, Corresponding Member AS USSR, on the application of electron microscopy, Academician I. S. Beritashvili and E. A. Asratyan, Corresponding Member AS USSR, on the development of physiology. M. S. Gilyarov, Doctor of Biological Sciences and Ye. M. Lavrenko, Corresponding Member AS USSR, dealt with various problems and G. A. Deborin, Candidate of

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Biological Sciences, reported on the preparation of the Congress on Biochemistry in Moscow in August 1961. S. Ye. Severin, Corresponding Member AS USSR, P. A. Baranov and B. Ye. Bykhovskiy reported on shortcomings of accounts, Academician Yu. A. Orlov on storage of collections. Academician A. L. Kursanov mentioned the necessity of strengthening links between Department and practice; I. G. Bazhenin, Doctor of Agricultural Sciences and V. O. Mokhnach, Candidate of Chemical Sciences, reported on various shortcomings. L. M. Metlitskiy, Doctor of Agricultural Sciences, F. E. Reymer, Doctor of Biological Sciences and P. I. Lapin, Candidate of Biological Sciences, reported on the exchange of experiences. N. D. Iyerusalimskiy, Corresponding Member AS USSR, M. S. Mitskevich, Doctor of Biological Sciences and Academician V. N. Chernigovskiy reported on the insufficient utilization of research results of their institutes in national economy. L. A. Tumerman, Professor, and G. K. Khrushchov, Corresponding Member AS USSR, dealt with the problem of cadavers. A. M. Kuzin, Corresponding Member AS USSR, and G. K. Skryabin, Candidate of Biological Sciences, reported on international scientific links. I. I. Tumanov, Corresponding Member AS USSR, dealt with problems of housing and equipment. In the discussion of the report, the following scientists participated as guests:

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S/030/61/000/007/003/003
B105/B206

AUTHOR: Sisakyan, N. M., Academician, Academician-Secretary

TITLE: Discussion of the report by M. V. Keldysh

PERIODICAL: Akademiya nauk SSSR. Vestnik, no. 7, 1961, 65-66

TEXT: The author states that biological sciences are becoming increasingly important within the system of natural sciences and a thorough study of the processes of vital activity is expected in the second half of this century. The main problem of modern natural sciences is the photosynthesis, and the culmination of biological sciences is the knowledge of the activity of the human brain. Radical changes of the technology of biological experiments led to important achievements, especially during the investigation of proteins and nucleinic acids. Biochemical research opened up great possibilities of using biologically active proteins, the ferments, in industry. In 1958, it was decided to establish some plants for the manufacture of purified ferment preparations, but the Moskovskiy gorodskoy sovnarkhoz (Moscow Municipal sovnarkhoz) and Kalininskiy sovnarkhoz (Kalinin sovnarkhoz), mentioned in this connection, have practically done

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B105/B206

Discussion of the report by ...

nothing to realize this project. Although research by biologists showed the important part played by microelements in the life of plants and animals, nothing was done to produce these microelements. In conclusion, it is stated that a great number of shortcomings exist in coordination and the introduction of research results into production. The extent to which many scientific institutions of the country are consulted for the solution of important theoretical problems is insufficient. The scientific councils for these problems do not introduce new research methods sufficiently, and seldom hold discussions. Serious shortcomings also appear in the training of scientific cadres, where more attention should be paid to mathematics, physics, and chemistry. N. M. Sisakyan finally mentions the resolutions by the TsK KPSS and Sovet Ministrov SSSR (Council of Ministers USSR) in this field.

ASSOCIATION: Otdeleniye biologicheskikh nauk Akademii nauk SSSR (Department of Biological Sciences of the Academy of Sciences USSR)

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S/029/61/000/009/004/006
D037/D113

AUTHOR: Sisakyan, N.M., Academician, Secretary of the Department
(see Association)

TITLE: Physics and chemistry are changing the face of biology

PERIODICAL: Tekhnika molodezhi, no. 9, 1961, 15

TEXT: This article deals with the study of biological problems in the light of modern physics and chemistry. The author reviews in particular: (1) the study of the structure of protein molecules; (2) photosynthesis; and (3) the study of cerebral activity under unusual conditions. Due to modern technical means used in biological experiments, the structure of such important biologically active proteins as insulin, hemoglobin, etc., has been established. The problem of the enzymatic synthesis of nucleic acid has been solved and biochemists are approaching realization of the artificial synthesis of protein molecules. The author stresses the increasing significance of photosynthesis in agriculture. The highest ef- ✓

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Physics and chemistry

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D037/D113

efficiency of photosynthesis can be obtained with unicellular algae cultures (chlorella) where about 25% of the absorbed light energy can be harnessed against 3 to 5% in the field. The study of the structural and metabolic bases of excitation and inhibition opens new possibilities of a directed regulation of the basic nervous processes. With regard to space flights, the author underlines the importance of increasing the efficiency of the brain without harming the organism and of making the brain resistant to special extreme conditions. There are 3 vignettes. ✓

ASSOCIATION: Otdeleniye biologicheskikh nauk AN SSSR (Department of Biological Sciences of the AS USSR)

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S/025/61/000/011/001/003
D243/D302

AUTHOR: Sisakyan, N.M., Academician

TITLE: Biochemistry and Space

PERIODICAL: Nauka i zhizn', no. 11, 1961, 50-53


TEXT: This is one of a group of articles on the 5th International Congress of Biochemistry and deals with the contribution biochemistry may make to space science and vice versa. The impossibility of carrying sufficient food on a prolonged space flight will necessitate the establishment on board of closed, ecological systems to feed the astronaut. This idea of K.E. Tsiolkovsky involves using human and animal waste to grow plants, with which to feed the travellers. The single-celled alga, Chlorella, is likely to be of great importance in this connection due to its rapid multiplication, need for little attention, ability to utilize solar energy and the physiologically valuable materials

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Biochemistry and Space

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D243/D302

it contains. Cosmic flights may help to solve the problem of extra-terrestrial life. Arrhenius's Panspermism Theory and objections to it are discussed. An article by Academician A.I. Oparin in the current journal is mentioned. This question is closely linked with the study of the biosphere, begun by Academician V.I. Vernadskiy, the lower limit of which has been established already at 10-11 kilometer below sea level, but the upper limit of which is still unknown. The existence is postulated of a zone in the Solar System where conditions are suitable for the existence of carbon based living matter. Only Mars, Earth and Venus are in this zone. Recent observations by Sinton, applying theories of Academician Tikhov, have supported this theory. From comparison of terrestrial and extra-terrestrial forms of life and of adaptation of the former to the environment in other parts of the solar system it may be possible to derive a unified law of life in the Universe.



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SISAKEAN, N. M. [Sisakyan, N. M.]

Biochemical functions of cellular structures. Analele biol 15 no.6:
27-54 N-D '61.

SISAKYAN, N.M., akademik

Man strides into the space. Sov. profsoiuzy 17 no.14:27-30
Jl '61. (MIRA 14:7)

(Space biology)

SISAKYAN, N.M. (Moskva); GAZENKO, O.G. (Moskva); GENIN, A.M. (Moskva)

Some problems of space biology. Zhur. ob. biol. 22 no. 5: 325-332
S-0 '61. (MIRA 14:9)

(SPACE BIOLOGY)

MOSOLOVA, I.M.; SISAKYAN, N.M.

Condition enabling the isolation of mitochondria from plant cells.
Biokhimiia 26 no.3:549-555 My-Je '61. (MIRA 14:6)

1. Institute of Biochemistry, Academy of Sciences of the U.S.S.R.,
Moscow.

(MITOCHONDRIA)

(PLANTS-CHEMICAL ANALYSIS)

SISAKYAN, N.M., akademik - sekretar'

Toward the 22d Congress of the CPSU. Izv. AN SSSR. Ser.
biol. 26 no.5:657-663 S-0 '61. (MIRA 14:9)

1. Otdeleniye biologicheskikh nauk AN SSSR.
(BIOLOGICAL RESEARCH)

SISAKYAN, N.M.; KALACHEVA, V.Ya.

Action of X-ray irradiation on oxidizing phosphorylation in plant mitochondria. Biokhimiia 26 no.5:877-881 S-0 '61. (MIRA 14:12)

1. Institute of Biochemistry, Academy of Sciences of the U.S.S.R., Moscow.

(PHOSPHORYLATION) (MITOCHONDRIA)
(PLANTS, EFFECT OF RADIOACTIVITY ON)

11111, 11111, 11111, 11111.

Nature of the inhibiting effect of mitochondria on glycolysis.
Mokhammad. (no. 6:109) 1094 N D 101. (MIRA 15:6)

1. Institute of Biochemistry, Academy of Sciences of the
U.S.S.R., Moscow.
(MITOCHONDRIA) (GLYCOLYSIS)

SISAKYANU, Norayr Martirosovich, akademik

Man in orbit. Tekh.mol. 29 no.5:16-17 '61.
(Astronautics)

(MIRA 14:5)

SISAKYAN, N.M., akademik; RUBANIK, K.P., kand.yurid.nauk

Some problems in international cooperation in science; results of the
11th session of the general meeting of UNESCO. Vest.AN SSSR 31
no.5:78-88 My '61. (MIRA 14:6)
(Science--International cooperation)

27.2000 4012

23454
S/030/61/000/006/005/014
B101/B206

AUTHOR: Sisakyan, N. M., Academician
TITLE: Biological problems of cosmic flight
PERIODICAL: Akademiya nauk SSSR. Vestnik³¹ no. 6, 1961, 31 - 40

TEXT: A survey of the development of cosmic biology is given on the occasion of the flight by Yuriy Alekseyevich Gagarin on April 12, 1961. Five stages are distinguished: (1) Exploration of the upper atmosphere by means of rockets; (2) biological research on animals in heights from 100 to 450 km; (3) investigations by means of satellites, assurance of telemetric communications (4) recovery of animals used for experiments; (5) flight of a human being. Overload and weightlessness had no detrimental effect, the blood circulation was not disturbed. The effect of ionizing radiation is not clarified yet, since the flights carried out so far were made below the radiation belt. The voluntary pilots were examined clinically and psychologically, trained under flight conditions, and instructed in landing, control and radio communications. The following

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Biological problems of cosmic flight

data on Gagarin's flight are given: Inside cabin pressure 750-770 mm Hg, temperature 19-22°C, relative humidity 62-71%. Cardiac and respiratory reactions of the pilot: 30 min before start: pulse 66, respiration 24; 3 min before start: pulse 109, respiration unchanged; at start: pulse 140-158, respiration 20-26; after start: pulse 109, respiration 18; during the state of weightlessness: pulse 97, respiration 22. No inhibition of the capacity of action. Short-time increase of respiratory frequency during landing, but only 16 during approach to the ground. 3 hr after landing: pulse 68, respiration 20. The following future problems are mentioned: (A) Effect of cosmic factors: (1) Mutations under the effect of radiation. The possibility of using the cosmic factors for selection is mentioned. Problem of cell division during the state of weightlessness. (2) Protection against proton radiation by the inner belt. (3) Use of solar radiation for the energetics of the space ship. (B) Biological problems: (1) A calculation yields the following data: daily requirement of O₂, H₂O and nourishment of a human being 3500 g. This makes 19 t for 5 persons and 3 years. (2) This shows the necessity to establish a biological cycle in the cabin by using solar radiation:

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Biological problems of cosmic flight

(a) complete water cycle (distillation, electroosmosis or exchanger resins) can be achieved; (b) O_2 cycle: photolytic decomposition of CO_2 by means of hard ultraviolet on a copper catalyst; electrolysis (or pyrolysis) of the metabolic H_2O , interaction of H_2 with CO_2 under formation of $HCOH$ and O_2 . Utilization of anaerobic bacteria which adsorb H_2 and CO_2 and eliminate O_2 . (c) Regeneration of nourishment and products of vital action. Complete synthesis from inorganic substances is still a theory. More possible is a cycle corresponding to the natural cycle on the earth. The photosynthesis by unicellular algae, the nutritive value of which is investigated at present, is discussed. The psychological effect of nourishment must, however, also be taken into calculation, so that the carrying of plants and animals is to be considered. (3) Forms and conditions of life in the cosmos are still hypothetical. The existence of organisms has not been proved with certainty yet. The problem of the possibility of existence of terrestrial forms of life and their adaptation to living conditions on other planets is mentioned, as well as the uncontrolled transfer of terrestrial microorganisms to other planets

Card 3/4

SISAKYAN, N.M., akademik

The Pugwash meetings of scientists. Vest. AN SSSR 31 no.11:
81-84 N '61. (MIRA 14:11)
(Science--International cooperation)

POSPELOV, P.N., akademik; MINTS, A.L., akademik; ALEKSANDROV, A.P.,
akademik; FEDOSEYEV, P.N., akademik; LAVRENT'YEV, M.A., akademik;
BERG, A.I., akademik; PETROVSKIY, I.G., akademik; SIDORENKO, A.V.;
SKRYABIN, G.K., kand.biolog.nauk; KONSTANTINOV, B.P., akademik;
GOLUNSKIY, S.A.; SHUBNIKOV, A.V., akademik; BLOKHINTSEV, D.I.;
DORODNITSYN, A.A., akademik; KEDROV, B.M.; SISAKYAN, N.M., akademik

Discussing the reports. Vest. AN SSSR 31 no.12:49-66 D '61.
(MIRA 14:12)

1. Chleny-korrespondenty AN SSSR (for Sidorenko, Golunskiy,
Blokhintsev, Kedrov).

(Research)

SISAKYAN, N.M., akademik

The way to space is open. Priroda 50 no.5:6-7 My '61.
(MIRA 14:5)

(Astronautics)

SMIL'VSKAYA, N.A.; SISANIYAN, N.M., akademik

Nucleotide composition of nucleic acids in some insect species.
Dokl. AN SSSR 137 no. 1:206-209 Apr '61. (MIRA 14:2)
(Insects--Physiology) (Nucleotides)

SISAKYAN, N.M. (Moskva)

Biochemical functions of cellular structures. Usp. sovr. biol. 51
no. 2:129-152 Mr-Apr '61. (MIRA 14:4)
(CELL METABOLISM)

S/020/61/141/003/021/021
B103/B101

AUTHORS: Sisakyan, N. M., Academician, Bezinger, E. N., and Marchukaytia,
A. N.

TITLE: Participation of plastid lipoids in protein synthesis

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 141, no. 3, 1961, 748 - 750

TEXT: The bond between lipopeptide and protein molecule was studied to prove directly its participation in protein synthesis. Lipopeptides are located in cell structures where protein synthesis takes place. Hence, lipopeptides are assumed to participate in protein synthesis. Chloroplasts were isolated from 200 - 250 g of young bean leaves (*Phaseolus*) by fractional centrifuging with 3000g of saccharose phosphate buffer (pH 7.1) at a maximum of 3 - 4°C. They were ground in a homogenizer in 20 milliliters of the buffer, and incubated in the presence of Mg^{2+} ions at room temperature and a pH of 7.0. 0.25 milliliters of glycine-1- C^{14} solution (corresponds to 328,000 imp/min) and 1 milliliter of chloroplast suspension were added to each sample. The inclusion was periodically interrupted by addition of 0.01 milliliters of 10% HCl (pH ~ 1) and rapid cooling. Before adding a suspen-

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B103/B101

Participation of plastid...

sion, HCl was mixed with the control samples. After incubation, the test tubes were centrifuged the deposit was washed with water and extracted three times with a 75% alcohol (up to a pH of 4, acidified with HCl). Thus, the lipoproteid fraction was obtained from plastids. The following fractions were obtained: "lipoid I", "protein I", and "protein II" whose radioactivity was determined. Under the above-mentioned conditions, glycine-1-C¹⁴ was found to be included almost simultaneously in the lipoid and protein parts of lipoproteid. At a pH of 5.8, the inclusion of radioactive label

in the lipoid part is independent of Mg²⁺, whereas this inclusion is completely missing in the protein part without Mg²⁺. Thus, it was shown that amino acids in isolated plant plastids were included in proteins with active participation of lipoids bound to proteins. Besides nucleic acids, lipoid substances are also assumed to take part in the activation and transport of amino acids. Their participation however, can be of a different nature; thus, especially lipoids may take part in the regulation of permeability processes. The studies are being continued. There are 1 figure, 2 tables, and 20 references: 9 Soviet and 11 non-Soviet. The three most recent references to English-language publications read as follows: G. B. Hunter, R. A. Goodsall, Biochem. J., 78, 561 (1961); T. Fukui, B. Axelrod, Card 2/3

Participation of plastid...

S/020/61/141/003/021/021
B103/B101

Federat. Proc., 19, 6 (1960); T. Fukui, B. Axelrod, J. Biol. Chem., 236,
811 (1961).

SUBMITTED: August 23, 1961

Card 3/3

TATARSKAYA, R.I. Prinsipali uchastiye: MALKOVA, M.G.; KOSAREVA, Ye.A.;
SISAKYAN, N.M., akademik, glav. red.; ENGEL'GARD, V.A., aka-
demik, red. toma; VETROVA, I.B., red.; POLYAKOVA, T.V., tekhn.
red.

[Biological structures and functions at the molecular level;
symposium 1] Biologicheskie struktury i funktsii na moleku-
liarnom urovne; simpozium I. Moskva, Izd-vo Akademii nauk
SSSR, 1962. 298 p. (Its: Trudy) (MIRA 15:12)

1. International Congress of biochemistry. 5th, Moscow, 1961.
(BIOCHEMISTRY--CONGRESSES)

GEL'FAN, N.S.; SISANNAN, N.M., akademik, glav. red.; BAREY, I.A., dokl. glav. red.; UFAKH, A.I., akademik, red. terna; VETROVA, I.B., red. izd-va; NOVICHKOVA, N.D., tekhn. red.

[Transactions of the Fifth International Congress of Biochemistry] Trudy V Mezhdunarodnogo biokhimicheskogo kongressa. Moskva, Izd-vo Akad. nauk SSSR. [Vol.4. Evolutionary biochemistry; symposium No.3.] Evoliutsionnaia biokhimiia; simpozium III. 1962. 350 p. (MIRA 15:10)

1. International Congress of Biochemistry. 5th, Moscow, 1961. (BIOCHEMISTRY—CONGRESSES)

POLYANOVSKIY, O.L.; TORCHINSKIY, Yu.M.; Prinimali uchastiye:
MALKOVA, M.G.; KOSAREVA, Ye.A.; SISAKYAN, N.M., akademk,
glav. red.; BAYEV, A.A., zam. glav. red.; BRAUNSHTEYN,
A.Ye., red. toma; VETROVA, I.B., red. izd-va; ZUDINA, V.I.,
tekhn. red.; DOROKHINA, I.N., tekhn. red.

[Molecular mechanism of enzyme action and inhibition; symposium 4]
Molekuliarnye osnovy deistviia i tormozheniia fermentov; simpo-
zium IV. Moskva, Izd-vo Akad. nauk SSSR, 1962. 361 p. (Its:
Trudy) (MIRA 16:2)

1. International Congress of Biochemistry. 5th, Moscow, 1961.
2. Chlen-korrespondent Akademii nauk SSSR (for Braunshteyn).
(ENZYMES)

LITVIN, F.F. Prinimali uchastiye: MALKOVA, M.G.; KOSAREVA. Ye.A.;
SISAKYAN, N.M., akademik, glav. red.; BAYEV, A.A., zam. glav.
red.; KRASNOVSKIY, A.A., red. ~~toma~~; VETROVA, I.B., red. ~~isd-~~
va; DOROKHINA, I.N., tekhn. red.

[Mechanism of photosynthesis; symposium VI] Mekhanizm foto-
sinteza; simpozium VI. Predsedateli: Kh.Tamia (IAponiia),
A.A.Krasnovskii (SSSR). Moskva, Izd-vo Akad. nauk SSSR,
1962. 386 p. (Its: Trudy) (MIRA 16:1)

1. International Congress of Biochemistry. 5th, Moscow, 1961.
2. Chlen-korrespondent Akademii nauk SSSR (for Krasnovskiy).
(Photosynthesis—Congresses)

KREKHOVA, M.A. Primali uchastiye: MALKOVA, M.G.; KOSAREVA, Ye.A.;
SISAKYAN, N.M., akademik, glav. red.; BAYEV, A.A., zam. glav.
red.; YUDAYEV, N.A., red. toma; VETROVA, I.B., red.izd-va;
DOROKHINA, I.N., tekhn. red.

[Biosynthesis of lipids; symposium VII] Biosintez lipidov;
simpozium VII. Moskva, Izd-vo Akad. nauk SSSR, 1962. 429 p.
(Its: Trudy) (MIRA 16:4)

1. International Congress of Biochemistry. 5th, Moscow, 1961.
2. Chlen-korrespondent Akademii meditsinskikh nauk SSSR (for
Yudayev).

(Lipids)

MASLOV, S.P. Prinimali uchastiye: MALKOVA, M.G.; KOSAREVA, Ye.A.;
SISAKYAN, N.M., akademik, glav. red.; BAYEV, A.A., zam.
glav, red.; SEVERIN, S.Ye., red.toma; VETROVA, I.B., red.
izd-va; GUSEVA, A.P., tekhn. red.

[Intracellular respiration: phosphorylating and nonphospho-
rylating oxidation reactions; symposium V] Vnutrikletochnoe
dykhanie: fosforiliruiushchie i nefosforiliruiushchie re-
aktsii okisleniia; simpozium V. Moskva, Izd-vo Akad. nauk
SSSR, 1962. 439 p. (Its Trudy) (MIRA 16:3)
1. International Congress of Biochemistry. 5th, Moscow, 1961.
2. Chlen-korrespondent Akademii nauk SSSR (for Severin).
(CELL METABOLISM) (PHOSPHORYLATION)

REINKSTEIN, T.N.; LISOVSKAYA, N.P.; MALKOVA, M.G.; KOSAREVA, Ye.A.;
SISAKYAN, N.M., akademik, glav. red.; BAYEV, A.A., zam. glav.
red.; VETROVA, I.B., red. izd-va; GUSEVA, A.P., tekhn. red.

[Transactions of the Fifth International Congress of Biochemistry]
Trudy V Mezhdunarodnogo biokhimicheskogo kongressa. Moskva, Izd-vo
Akad. nauk SSSR. [Vol.11. Sectional reports; sections 14-28] Refe-
raty sektiionnykh soobshchenii; sektiis 14-28. 1962. 581 p.
(MIRA 15:10)

1. International Congress of Biochemistry. 5th, Moscow, 1961.
(BIOCHEMISTRY--CONGRESSES)

SISAKYAN, N. M.

"USSR Contributions to the Exploration of Space."

report to be submitted for the International Symposium on Basic
Environmental Problems of Man in Space, (IAF), Paris, France, 29 Oct - 2 Nov 62

SISAKYAN, N.M.; PARIN, V.V.; CHERNIGOVSKIY, V.N.; YAZDOVSKIY, V.I.

Some problems of studying and conquering outer space. Probl.
kosm.biol. 1:5-16 '62. (MIRA 15:12)
(SPACE BIOLOGY)

SISAKYAN, N.M.; GAZENKO, O.G.; GENIN, A.M.

Problems of space biology. Probl.kosm.biol. 1:17-26 '62.
(MIRA 15:12)
(SPACE BIOLOGY)

SISAKYAN, N.M.; BEZINGER, E.N.; SHAPOSHNIKOVA, M.G.

Amino acid composition of *Chlorella pyreudoidosa*. Probl.kosm.
biol. 1:317-376 '62. (MIRA 15:12)
(ALGAE AS FOOD) (ASTRONAUTS—NUTRITION) (AMINO ACIDS)

S/216/62/000/002/001/002
1021/1221


AUTHOR: Sisakyan, N. M., Parin, V. V., Chernigovskiy, V. N. and Yazdovskiy, V. I.

TITLE: Problems of space biology and physiology

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya biologicheskaya, no. 2, 1962, 153-162

TEXT: Lecture at the General Session of the Department of Biological Sciences.

The article deals with space biology and physiology in the USSR. Although a young science, it has already created new methods of biological experimentation, realized automatically by special devices installed on spaceships. The results of these experiments are registered and delivered to observation points on the earth. According to the authors, 3 problems are at present of great importance: 1) study of the effects of cosmic factors on living organisms of the earth, 2) study of forms of life in outer space, 3) investigations into the biological basis for securing cosmic flights and life on planets. The authors outlined 5 periods in the development of space biology in the USSR. The first was connected with biological interpretation of the data on physical characteristics of the upper layers of the atmosphere, cosmic space and flights of rockets. In the second period experiments were carried out under conditions near to those of cosmic flight. In the third—experiments were carried out on Sputnik II. It was demonstrated that life is possible under conditions free from gravity. In the fourth period biological experiments were carried out on spaceships with animals. These assembled the data



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Problems of space biology and...

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1021/1221

necessary for putting a man in to orbit. The fifth period was characterized by the flight of man in space. The authors deal further with all factors liable to affect living organism in a spaceship. They divide them into 3 groups: 1) factors connected with the dynamics of the flight-vibration, lack of gravity, 2) ultraviolet, infrared and visible parts of radiation, ionizing radiation, concentration of gases, 3) factors connected with more or less prolonged life of organisms under artificial conditions of a spaceship-isolation, lack of room in the capsule, microclimate and nutrition and rhythm of life. The authors also referred to exobiology. ✓

Card 2/2

SISAKYAN, N.M.

Scientific achievements of the institutions of the Department
of Biological Sciences and their practical application. Izv.
AN SSSR. Ser. biol. no.3:317-331 My-Je '62. (MIRA 15:6)
(BIOLOGICAL RESEARCH)

SISAKYAN, N.M.; LOSOLOVA, I.M.

Biochemical functions of plant mitochondria. Izv. AN SSSR.
Ser. biol. no.3:332-353 My-Je '62. (MIRA 15:6)

1. Institute of Biochemistry, Academy of Sciences of the
U.S.S.R., Moscow.

(MITOCHONDRIA)

SISAKYAN, N. M. (Moskva); MELIK-SARKISYAN, S. S. (Moskva)

Proteins in chloroplasts. Usp. biol. khim. 4:1-4,1 (1957)
(MIRA 1:17)

(PROTEINS) (CHROMATOPHORES)

SISAKYAN, N.M.; ZDARSKIY, I.B.

Functional biochemistry of cell structures at the Fifth International
Biochemical Congress. TSitologia 4, no.2:243-247 Mr-Apr '62.
(MIRA 15:8)

(CYTOLOGY--CONGRESSES)

S/026/62/000/007/001/005
D050/D113

AUTHOR: Sinukyan, N.M., Academician

TITLE: A new phase

PERIODICAL: Priroda, no. 7, 1962, 13-15

TEXT: This is the first of a series of articles by participants of the Spetsial'naya sessiya "Biologiya i kibernetika" (Special Session "Biology and Cybernetics"), convened by the Biologicheskoye otdeleniye AN SSSR (Biology Department of the AS USSR) jointly with the Nauchnyy sovet po kibernetike (Scientific Council for Cybernetics) and other scientists, in which the author advocates that cybernetic and mathematical methods should be widely applied in biological research. The use of such methods in biology has started lately, but it is too early to sum up or draw final conclusions. Initial work has been done in the study of complicated biochemical and biophysical phenomena of molecules, subcells, and cells, where the unity of structure and function makes it possible to penetrate into the essence of the most complicated phenomena of living nature. Cybernetic ideas and

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3/026/62/000/007/001/005
D050/D113

A new phase .

methods are applied in the modern physiology of receptors and reception. Ideas and methods of the theory of automatic control have found application in basic physiological function control. The development of more or less perfect machines, capable of making decisions under complex quickly-changing conditions is connected with this problem, the solution of which would permit problems, such as the automatic perception of speech, the analysis of biological structures, pilotless cosmic flight, to be automated. A cybernetic approach in the reproduction of some elementary functions of living beings will help combat premature aging, and will assist in overcoming diseases resulting from rhythm disturbances in molecular and structural processes. The interaction between cybernetics and biological phenomena is stressed.

Card 2/2

SISAKEAN, N.M. [Sisakyan, N.M.]; GAZENKO, O.G.; GHENIN, A.M. [Genin, A.M.]

Some problems of cosmic biology. Analole biol 16 no.2:3-11
Mr-Apr '62.

✱

SISAKIAN, N.M., Akademik

Theoretical problems of biology and their importance for agriculture.
Kosmos biol 11 no.6:625-636 '62.

SISAKIAN, N.M.; VEINOVA, M.K.

The nature and the biological role of peptides and nucleotide
peptides. Analele biol 16 no.6:68-77 N-D '62.

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SISAKYAN, N.M.; VEYNOVA, M.K.

Nature and biological role of peptides and nucleotide peptides.
Biokhimiia 27 no.1:173-180 Ja-F '62. (HIRA 15:5)

1. Institute of Biochemistry, Academy of Sciences of the U.S.S.R.,
Moscow.

(PEPTIDES)

(NUCLEOTIDES)

MELIK-SHULISYAN, S.S.; SISAKYAN, N.M.; SVETAYLO, E.N.

Comparative properties of cytoplasmic proteins and of soluble
chloroplast proteins in higher plants. Biokhimiia 27 no.6:
1047-1053 N-D '62. (MIRA 17:5)

1. Institut biokhimii Imeri Bakha AN SSSR, Moskva.

MIKUL'SKA, Ye.I.; ODINTSOVA, M.S.; SISAKYAN, N.M.

Isolation and characteristics of ribosomes from chloroplasts.
Biokhimiya 27 no.6:1061-1070 N-D '62. (MIRA 17:5)

1. Institut biokhimii imeni Bakha AN SSSR, Moskva.

SISAKYAN, N.M., akademik

Important stage in the development of present day biochemistry.
Vest. AN SSSR 32 no.1:84-95 Ja '62. (MIRA 15:1)
(BIOCHEMISTRY)

SISAKYAN, N.M., akademik

Theoretical problems in biology and their importance to agriculture.
Vest. AN SSSR 32 no.5:8-19 My '62. (MiRA 15:5)
(Biological research) (Agriculture)

SISAKYAN, N., akademik

Biology and the conquest of space. Av.i kosm. 44 no.2:24-30
'62. (MIRA 15:3)

(SPACE BIOLOGY)

SISAKYAN, N.M., akademik, glav. red.; ROSTOVTSSEV, N.F., akademik, zam. glav. red.; BUKIN, V.N., zasl. deyatel' nauki i tekhniki RSFSR, doktor biol. nauk, zam glav. red.; MOZGOV, I.Ye., akademik, red.; KRASIL'NIKOV, N.A., red.; RAKITIN, Yu.V., red.; OVSYANNIKOV, A.I., red.; SHMANENKOV, N.A., doktor sel'khoz. nauk, red.; SAVEL'YEV, I.K., kand. sel'khoz. nauk, red.; KOCHEREZHKIN, V.G., kand. biol. nauk, red.; MIKHLIN, E.D., ved. red.; KOLPAKOVA, Ye.A., red. izd-va; RYLINA, Yu.V., tekhn. red.

[Problems of increasing the use of chemicals in animal husbandry; using biologically active preparations] Voprosy khimizatsii zhivotnovodstva; primeneniye biologicheskii aktivnykh preparatov. Sbornik rabot. Moskva, Izd-vo AN SSSR, 1963. 303 p. (MIRA 17:1)

1. Vsesoyuznaya akademiya sel'skokhozyaystvennykh nauk im. V.I.Lenina. 2. Vsesoyuznaya akademiya sel'skokhozyaystvennykh nauk im. V.I.Lenina (for Rostovtsev, Mozgov). 3. Chlen-korrespondent AN SSSR (for Krasil'nikov, Rakitin). 4. Chlen-korrespondent Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk im. V.I.Lenina (for Ovsyannikov).

(Stock and stockbreeding—Feeding and feeds)

(Agricultural chemistry)

SISAKYAN, N.M., akademik

At a new stage. Priroda 51 no.7:13-15 J1 '62.
(Information theory in biology)

(MIRA 15:9)

GUMILEVSKAYA, N.A.; SISAKYAN, N.M., akademik

Presence of pseudouridylic acid in the ribonucleic acid of insects.
Dokl.AN SSSR 144 no.1:223-225 My '62. (MIRA 15:5)
(Uridylic acid) (Nucleic acids)

SISAKYAN, N.M., akademik; GLADILIN, K.L.

Adenosinetriphosphoric acid and protein synthesis in chloroplasts.
Dokl.AN SSSR 144 no.2:453-456 My '62. (MIRA 15:5)

1. Institut biokhimii im. A.N.Bakha AN SSSR.
(ADENOSINETRIPHOSPHORIC ACID) (PROTEINS) (CHLOROPLASTS)

SISAKYAN, N.M., akademik; FILIPPOVICH, I.I.; SVETAYLO, E.N.

Participation of chloroplast ribosomes in protein
synthesis. Dokl. AN SSSR 147 no.2:488-489 N '62.
(MIRA 15:11)

1. Institut biokhimii im. A.N. Bakha AN SSSR.
(PROTEIN METABOLISM)
(CHROMATOPHORES)

VEYNOVA, M.K.; SISAKYAN, N.M., akademik

Inclusion of tagged amino acids and adenine-8-¹⁴C in nucleotide
peptides of baker's yeast (*Sacch. cerevisiae*). Dokl. AN SSSR
147 no.3:731-734 N '62. (MIRA 15:12)

1. Institut biokhimii im. A.N. Bakha AN SSSR.
(AMINO ACIDS) (ADENINE) (PEPTIDES)

SISAKYAN, N. M., akademik; BEZINGER, E. N.; MARCHUKAYTIS, A. S.
[Marchukaitis, A.]

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